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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/736,854

12/16/2003

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16356.826 (DC-05328)

9080

27683 7590 08/14/2008  
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EXAMINER

CLEARY, THOMAS J

ART UNIT

PAPER NUMBER

2111

MAIL DATE

DELIVERY MODE

08/14/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Number 6,148,353 to Cho ("Cho"), US Patent Application Publication Number 2004/0212822 to Schinner ("Schinner"), "About SP-DIF or S/PDIF" by DJ Greaves ("Greaves"), and with evidence of inherency provided by Computer Organization and Design, Second Edition, by John L. Hennessey et al. ("Hennessey").

3. In reference to Claim 1, Cho discloses an information handling system including: an audio coder and decoder including a unidirectional digital audio output (See Figure 3 Number 40 and Column 3 Lines 37-40); a first docking connector in a portable portion (See Figure 3 Number 51); a second docking connector in a docking station (See Figure 3 Number 52); and a digital audio receiver to convert digital audio to analog audio and including a unidirectional digital audio input (See Column 3 Lines 29-31 and 34-40), wherein the digital audio receiver is located at the docking station and coupled to the

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docking connector via the unidirectional digital audio input (See Figure 3 Number 80).

The computer of Cho will inherently include a processor; memory coupled to the processor; and glue logic coupled to the processor for facilitating connection of the processor to other devices, as these components are necessary for a computer to operate, as evidenced by Hennessy (See Pages 13-18). Cho is silent as to the type of unidirectional digital audio output used and the type of connector used, and does not disclose that the unidirectional digital audio output is a Sony-Philips Digital Interface (S/PDIF); that the docking connector is a multipin docking connector; wherein only one audio pin of the first multi-pin docking connector is coupled to the audio coder and decoder, and wherein the only one audio pin of the first multi-pin docking connector is coupled to the audio coder and decoder via the unidirectional S/PDIF digital audio output; and wherein only one audio pin of the second multi-pin docking connector is coupled to the only one audio pin of the first multi-pin docking connector; and wherein the digital audio receiver is coupled to the only one audio pin of the second multi-pin docking connector via a unidirectional S/PDIF digital audio output. Schinner discloses the use of multipin docking connectors (See Paragraph 39). Greaves discloses the use of S/PDIF, which is a unidirectional digital link for audio (See Page 1 Paragraph 1 – Page 2 Paragraph 2). As S/PDIF uses only a single conductor (See Page 1 Paragraphs 2-3), the use of S/PDIF as the unidirectional digital audio link would necessarily only allow a single audio pin of the docking connector to be coupled to the audio coder and decoder through the S/PDIF link, and a single audio pin of the docking connector to be connected to the digital audio receiver through the S/PDIF link.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Cho with a multipin docking connector and an S/PDIF audio link, resulting in the invention of Claim 1, because Cho is silent as to the type of docking connector used and the type of unidirectional audio link used, and one of ordinary skill in the art would naturally look to known connector types, such as a multipin connector, which allows for the transfer of both power and data (such as audio data) to be transferred through the same connector (See Paragraph 39 of Schinner), and to known unidirectional audio links, such as an S/PDIF unidirectional digital audio link, which is well known (See Page 1 Paragraph 3 of Greaves) and which can carry a pair of stereo channels with a sampling rate of up to 96 Kbps with a sampling precision of up to 24 bits and automatic adaptation to the rate and precision being delivered (See Page 1 Paragraph 1 of Greaves).

4. In reference to Claim 5, Cho, Schinner, Greaves, and Hennessy disclose the limitations as applied to Claim 1 above. Cho further discloses that the digital audio receiver includes an analog output (See Column 3 Lines 40-42).

5. In reference to Claim 6, Cho, Schinner, Greaves, and Hennessy disclose the limitations as applied to Claim 5 above. Cho further discloses a first power amplifier coupled to the analog output (See Figure 3 Number 70 and Column 3 Lines 40-42).

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6. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho, Schinner, Greaves, and Hennessy as applied to Claim 6 above, and further in view of US Patent Number 6,359,994 to Markow et al. ("Markow").

7. In reference to Claims 7 and 8, Cho, Schinner, Greaves, and Hennessy disclose the limitations as applied to Claim 6 above. Cho, Schinner, Greaves, and Hennessy do not disclose a second power amplifier coupled to the second output, as in Claim 7, and a subwoofer coupled to the second power amplifier, as in Claim 8. Markow discloses a docking station having a first set of speakers (See Figure 3 Numbers 300 and 302 and Figure 5 Numbers 504 and 505) coupled to a first power amplifier (See Figure 3 Numbers 320 and 322), and a subwoofer (See Figure 1B Number 107, Figure 3 Number 304, and Figure 5 Number 508) coupled to a second power amplifier (See Figure 3 Number 324).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Cho, Schinner, Greaves, and Hennessy with the docking station subwoofer of Markow, resulting in the invention of Claims 7 and 8, in order to provide good sound quality with adequate bass in a portable computer without requiring cumbersome external speakers, thus increasing the enjoyment the user can get from the computer (See Column 2 Line 38 - Column 3 Line 4 of Markow).

8. In reference to Claims 9 and 10, Cho, Schinner, Greaves, Hennessy, and Markow disclose the limitations as applied to Claim 8 above. Markow further discloses

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that the docking station has a substantially closed volume having an aperture, as in Claim 9, and that the subwoofer is situated in the aperture to project sound therethrough, as in Claim 10 (See Figure 1B Numbers 100 and 107).

9. Claims 11, 17, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho, Schinner, and Greaves.

10. In reference to Claim 11, Cho discloses a method of operating an information handling system including a portable portion (See Figure 3 'Host') and a docking station (See Figure 3 'Docking Station'), the method comprising: generating, by the portable portion, a digital audio signal (See Figure 3 Number 40 and Column 3 Lines 37-40); sending the digital audio signal across a docking interface between the portable portion and a docking station (See Figure 3 Number 50), wherein the docking interface comprises a first docking connector (See Figure 3 Number 51) coupled to an audio coder and decoder (See Figure 3 Number 40 and Column 3 Lines 37-40), and the first docking connector is coupled to a second docking connector (See Figure 3 Number 52), and wherein the second docking connector is coupled to a digital audio receiver (See Figure 3 Number 80); converting the digital audio signal to an analog audio signal (See Column 3 Lines 29-31 and 34-42); and amplifying the analog audio signal (See Figure 3 Number 70 and Column 3 Lines 40-42). Cho is silent as to the type of digital audio signal used and the type of connector used, and does not disclose that the digital audio signal conforms to a Sony-Philips Digital Interface (S/PDIF) standard; that the docking

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connector is a multi-pin docking connector, that the first multi-pin docking connector is connected to the audio coder and decoder using only one audio pin of the first multi-pin docking connector, wherein the second multi-pin docking connector is coupled to the digital audio receiver using the only one audio pin of the second multi-pin docking connector. Schinner discloses the use of multipin docking connectors (See Paragraph 39). Greaves discloses the use of S/PDIF, which is a unidirectional digital link for audio (See Page 1 Paragraph 1 – Page 2 Paragraph 2). As S/PDIF uses only a single conductor (See Page 1 Paragraphs 2-3), the use of S/PDIF as the digital audio signal format would necessarily only allow a single audio pin of the docking connector to be coupled to the audio coder and decoder through the S/PDIF link, and a single audio pin of the docking connector to be connected to the digital audio receiver through the S/PDIF link.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Cho with a multipin docking connector and an S/PDIF audio link, resulting in the invention of Claim 11, because Cho is silent as to the type of docking connector used and the type of unidirectional audio link used, and one of ordinary skill in the art would naturally look to known connector types, such as a multipin connector, which allows for the transfer of both power and data (such as audio data) to be transferred through the same connector (See Paragraph 39 of Schinner), and to known unidirectional audio links, such as an S/PDIF unidirectional digital audio link, which is well known (See Page 1 Paragraph 3 of Greaves) and which can carry a pair of stereo channels with a sampling rate of up to 96 Kbps with a



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sampling precision of up to 24 bits and automatic adaptation to the rate and precision being delivered (See Page 1 Paragraph 1 of Greaves).

11. In reference to Claim 17, Cho, Schinner, and Greaves disclose the limitations as applied to Claim 16 above. Cho further discloses providing the first amplified analog audio signal to a line out output of the docking station (See Column 3 Lines 40-42).

12. Claim 21 recites limitations which are substantially equivalent to those of Claim 11 and is rejected under the same reasoning.

13. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho, Schinner, and Greaves as applied to Claim 16 above, and further in view of US Patent Number 6,359,994 to Markow et al. ("Markow").

14. In reference to Claims 18 and 19, Cho, Schinner, and Greaves disclose the limitations as applied to Claim 17 above. Cho, Schinner, and Greaves do not disclose amplifying the analog audio signal by a second audio amplifier thus providing a second amplified analog audio signal, as in Claim 18, and providing the second amplified analog audio signal to a subwoofer loudspeaker, as in Claim 19. Markow discloses a docking station having a first set of speakers (See Figure 3 Numbers 300 and 302 and Figure 5 Numbers 504 and 505) coupled to a first power amplifier (See Figure 3 Numbers 320 and 322), and a subwoofer (See Figure 1B Number 107, Figure 3

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Number 304, and Figure 5 Number 508) coupled to a second power amplifier (See Figure 3 Number 324).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Cho, Schinner, and Greaves with the docking station subwoofer of Markow, resulting in the invention of Claims 18 and 19, in order to provide good sound quality with adequate bass in a portable computer without requiring cumbersome external speakers, thus increasing the enjoyment the user can get from the computer (See Column 2 Line 38 - Column 3 Line 4 of Markow).

15. In reference to Claims 20, Cho, Schinner, Greaves, and Markow disclose the limitations as applied to Claim 19 above. Cho further discloses that the docking station exhibits a substantially closed volume (See Figures 1 and 2). Markow also further discloses that the docking station exhibits a substantially closed volume (See Figure 1B Number 100).

### ***Response to Arguments***

16. Applicant's arguments filed 10 June 2008 have been fully considered but they are not persuasive.

17. Applicant has argued that S/PDIF does not use a single conductor, and thus the cited prior art does not disclose that the only one audio pin of the multi-pin docking

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connector is coupled to the audio coder and decoder via a unidirectional S/PDIF digital audio output (See Pages 5-8). In response, the Examiner notes that it is well known in the art that S/PDIF digital audio is sent over a single conductor, as evidenced by "SPDIF Connection" by Gabriel Torres ("Torres") (See Figures 6, 7, 8, and 9), and not, as alleged by Applicant, over a connection requiring both "+" conductor and a "-" conductor. S/PDIF encodes both a data stream and a clock stream to be conveyed over a line [singular] (See Page 1 Paragraph 2 of Greaves). S/PDIF commonly uses as the single conductor an RCA cable which, as is well known in the art, consists of a single conductor surrounded by a grounded shield. Thus, as it is known in the art to transmit S/PDIF over a single conductor, one of ordinary skill in the art would naturally recognize that in the combinations of references as applied above, the S/PDIF would be transmitted over a single conductor. Further, the Examiner notes that, were S/PDIF to require multiple conductors, then only one audio pin of the multi-pin docking connector could not be coupled to the audio coder and decoder via a unidirectional S/PDIF digital audio output, as claimed, and Applicant's claimed invention would be rendered inoperable.

18. Applicant has argued that the Examiner has not expressed any reason why a person of ordinary skill in the art would combine the references in the way the claimed new invention does (See Pages 8-9). In response to Applicant's argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to

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produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the Examiner has clearly disclosed, following each grounds of rejection, a motivation for the combination. Namely, that it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Cho with a multipin docking connector and an S/PDIF audio link, because Cho is silent as to the type of docking connector used and the type of unidirectional audio link used, and one of ordinary skill in the art would naturally look to known connector types, such as a multipin connector, which allows for the transfer of both power and data (such as audio data) to be transferred through the same connector (See Paragraph 39 of Schinner), and to known unidirectional audio links, such as an S/PDIF unidirectional digital audio link, which is well known (See Page 1 Paragraph 3 of Greaves) and which can carry a pair of stereo channels with a sampling rate of up to 96 Kbps with a sampling precision of up to 24 bits and automatic adaptation to the rate and precision being delivered (See Page 1 Paragraph 1 of Greaves); that it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Cho, Schinner, Greaves, and Hennessy with the docking station subwoofer of Markow, in order to provide good sound quality with adequate bass in a portable computer without requiring cumbersome external speakers, thus increasing the enjoyment the user can get from the computer (See Column 2 Line 38 - Column 3 Line

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4 of Markow); that it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Cho with a multipin docking connector and an S/PDIF audio link, because Cho is silent as to the type of docking connector used and the type of unidirectional audio link used, and one of ordinary skill in the art would naturally look to known connector types, such as a multipin connector, which allows for the transfer of both power and data (such as audio data) to be transferred through the same connector (See Paragraph 39 of Schinner), and to known unidirectional audio links, such as an S/PDIF unidirectional digital audio link, which is well known (See Page 1 Paragraph 3 of Greaves) and which can carry a pair of stereo channels with a sampling rate of up to 96 Kbps with a sampling precision of up to 24 bits and automatic adaptation to the rate and precision being delivered (See Page 1 Paragraph 1 of Greaves); and that it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Cho, Schinner, and Greaves with the docking station subwoofer of Markow, in order to provide good sound quality with adequate bass in a portable computer without requiring cumbersome external speakers, thus increasing the enjoyment the user can get from the computer (See Column 2 Line 38 - Column 3 Line 4 of Markow).

### ***Conclusion***

19. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THOMAS J. CLEARY whose telephone number is (571)272-3624. The examiner can normally be reached on Monday-Thursday (7-3).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on 571-272-3632. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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